

We claim:

1. A package for an imager integrated circuit chip, the imager integrated circuit chip having a bond pad for communicating an electrical signal to or from the imager integrated circuit chip, the package comprising:
  - a printed circuit board comprising at least one bond lead and at least one package lead electrically coupled to the bond lead;
  - the imager integrated circuit chip disposed on the printed circuit board;
  - the bond pad coupled to the at least one bond lead, allowing communication of the electrical signal between the at least one package lead and the imager integrated circuit chip; and
  - an optical cover, disposed on the printed circuit board, that, with the printed circuit board, encapsulates the imager integrated circuit chip.
2. The package of claim 1, wherein the printed circuit board further comprising:
  - a retaining structure disposed on the printed circuit board around the imager integrated circuit chip, the retaining structure and the printed circuit board forming a recess in which the imager integrated circuit chip is mated to the printed circuit board; and
  - the optical cover comprising a filler material deposited in the recess.
3. The package of claim 2 wherein the filler material cures within the recess to form a hardened protective coating over the imager integrated circuit chip.
4. The package of claim 1 wherein the printed circuit board contains multiple layers of conducting circuitry.
5. The package of claim 1 wherein the at least one package lead is arranged on a periphery of the printed circuit board.
6. The package of claim 1, wherein the at least one package lead comprises a plurality of package leads arranged in an array.
7. The package of claim 1 wherein the printed circuit board comprises a plurality of layers.

1 8. The package of claim 7 wherein the electrical signal is communicated on at least two of  
2 the plurality of layers.

1 9. The package of claim 1 wherein the electrical signal is routed to reduce capacitive or  
2 inductive interference.

1 10. A chip carrier package for an imager integrated circuit chip, the imager integrated circuit  
2 chip having a plurality of electrical pads, the package comprising:

3 a preformed package base comprising:

4 an insulating substrate,

5 a plurality of bond leads disposed on the insulating substrate, and

6 a plurality of package leads electrically coupled to the plurality of bond leads; and  
the imager integrated circuit chip disposed on the preformed package base; and  
an optical material disposed on the imager integrated circuit chip that cures to form a  
hardened protective coating over the imager integrated circuit chip.

11. The chip carrier package of claim 10, further comprising :

a retaining structure surrounding the imager integrated circuit chip, the retaining structure  
and the preformed package base forming a recess in which the imager integrated circuit chip is  
disposed on the preformed package base; and

the optical material being deposited in the recess before it has cured.

1 12. The chip carrier package of claim 10 wherein the optical material has light transmission  
2 characteristics.

1 13. The chip carrier package of claim 10 wherein the preformed package base contains  
2 multiple routing layers.

1 14. The chip carrier package of claim 10 wherein at least one of the plurality of package  
2 leads is arranged on a periphery of the preformed package base.

1 15. The chip carrier package of claim 10, wherein the preformed package base supports the  
2 plurality of package leads in an array.

1 16. The chip carrier package of claim 13 wherein at least one of the plurality of package  
2 leads is coupled to at least one of the plurality of bond leads through at least two of the multiple  
3 routing layers.

1 17. The chip carrier package of claim 13 wherein at least one of the multiple routing layers  
2 comprises a ground-plane.

1 18. An imager component comprising:  
2 a printed circuit board comprising a plurality of bond leads and a plurality of package  
3 leads;  
4 at least one of the plurality of bond leads coupled to at least one of the plurality of  
5 package leads;  
6 an imager integrated circuit chip coupled to the printed circuit board and to the at least  
7 one of the plurality of bond leads; and  
8 an optical material deposited on the imager integrated circuit chip and cured to protect the  
9 imager integrated circuit chip from an external environment.

1 19. The imager component of claim 18 further comprising a containment structure engaging  
2 the printed circuit board, the containment structure and the printed circuit board forming a recess  
3 in which the imager integrated circuit chip is disposed on the base insulating substrate.

1 20. The imager component of claim 19 wherein the optical material has a light transmission  
2 characteristic.